

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-023454**Date Inspected:** 05-May-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above.

This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

This QA Inspector observed ABF personnel working at the 9 meter level in an effort to weld the external diaphragm plates to the various shear plates and tower skin plates. This QA Inspector observed the following during the shift noted above.

This QA Inspector observed weld joints #47 and #48 were being preheated this date for welding. Weld joints #47 and #48 are located in the inner East section; #47 diaphragm plates will be welded to the North tower shaft, A-skin and #48 diaphragm plates will be welded to the East tower shaft A-skin plate.

This QA Inspector observed ABF personnel appeared to be having issues with the induction heating equipment being used to preheat the material. This QA Inspector observed ABF personnel setting up the preheat equipment at approximately 0700 hours but, it was just after 0900 hours before the minimum preheat temperature of 325°F was obtained and welding was started. See photo below of the typical blanket and tube type induction heating equipment and set up being used.

This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) and Jin Quan Huang (#9340) working together as a team at joint # 47 and James Zhen (#6001) and Wai Kitlai (#2953) working as another team

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at joint # 48. It was observed that during breaks, such as the morning and lunch breaks, one team member would take over the duty of welding from the other in order to have continuous welding through break periods.

This QA Inspector randomly observed as QC Inspector Pat Swain verified the following Flux Cored Arc Welding (FCAW) parameters; at weld joint # 47 – 290 amperes and 23.4 volts at travel speed of 438 mm per minute to produce a heat input of 0.93Kj. and at weld joint #48-265 amperes and 23.2 volts at a travel speed of 412 mm per minute to produce a heat input of 0.90 Kj per mm. The welding observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1.

This QA Inspector randomly observed QC Inspector Pat Swain perform Magnetic Particle Testing (MT) on the root pass of weld joints #47 and #48. QC Inspector Pat Swain informed this QA Inspector that both MT inspections were accepted.

This QA Inspector randomly observed as the welding progressed with QC Inspector Pat Swain monitoring the weld. By approximately 1230 hours this date welding was stopped and the induction heat blankets were placed over the welding to start the 325°F post heating for 3 hours. This QA Inspector observed both weld joints #47 and #48 were each approximately 1850 mm in length. The welding completed this date is as follows; #47 – the center 800 mm was welded to the full depth of the groove, #48 the center 600 mm was welded to the full depth of the groove. This QA Inspector observed the welding completed this date did not coincide with the amount of welding stated in RFI 002418R00. This QA Inspector brought this to the attention of QC Inspector Pat Swain. QC Inspector Pat Swain stated he informed ABF welding Supervisor Danny Ieraci of this and was informed that he felt enough weld had been deposited to prevent any cracking and that was the intention of the RFI submitted. This QA Inspector informed QC Inspector Pat Swain that ABF would proceed at their own risk.

This QA Inspector was informed by ABF welding Supervisor Danny Ieraci that welding would be performed at weld joints #31 and #32 tomorrow, but that both weld joint had a root opening of approximately 8-10 mm maximum and that ABF welding personnel would start the weld build up (“buttering”) of the joints using the Shielded Metal Arc Welding (SMAW) process at these areas to close the gap to no more than 3 mm. This QA Inspector did not observe this work being performed this date, ABF personnel were moving welding and induction heating equipment the rest of the shift this date.

Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted below there were no notable conversations.

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Hager,Craig
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Quality Assurance Inspector

Reviewed By:	Levell,Bill
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QA Reviewer
